

[NAME OF THE DOCUMENT] Abstract

[SUMMARY]

[PROBLEM TO BE SOLVED]

To newly create a catalyst support for more improving the power generation capability and durability with simple carbon black as a conventional catalyst for a polymer electrolyte fuel cell, a catalyst using the support and a cell using the catalyst for the electrode.

[MEANS TO SOLVE THE PROBLEM]

A composite powder obtained by mixing from 1 to 7% by mass of vapor grown carbon fiber with carbon black is used as a support and together with platinum or a platinum alloy, forms a catalyst layer for electrode. The carbon black and vapor grown carbon fiber each is preferably graphitized at 2,500°C or more, and also preferably comprises boron. A polymer electrolyte fuel cell employing a catalyst electrode using these as main raw materials is improved in the power generation efficiency and durability.

[SELECTED DRAWING] None

[NAME OF THE DOCUMENT] Abstract

[SUMMARY]

[PROBLEM TO BE SOLVED]

To obtain an electrically conducting material, particularly, submicron fine graphitized carbon powder suitable for various batteries represented by a fuel cell.

[MEANS TO SOLVE THE PROBLEM]

Carbon black and boron carbide are mixed and heat-treated at 2,500°C or more in a non-oxidative atmosphere, whereby carbon powder having a crystallite plane spacing  $C_{001}$  of 0.6730 nm or less can be obtained. A polymer electrolyte fuel cell using a catalyst electrode prepared using the carbon powder and platinum or a platinum alloy as main raw materials, is improved in the power generation efficiency and the durability.

[SELECTED DRAWING] None